



**Math 162**

**Skill Blasters**

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Skills Blaster Program for Math 162 Precalculus

Created for the Math and Science Resource Center

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Old Dominion University 2017

### **Content Structure:**

Each week Skills Blaster worksheets will be distributed to students in Precalculus (Math 162). The worksheets will contain 3 Math problems covering the fundamental skills necessary for students to successfully complete the topic that will be presented in the lecture course the following week. The Skills Blaster worksheets will be structured as follows:

**Topic:** Math content to be covered in lecture the following week.

**Questions to reflect upon:** Discussion of the skills necessary to understand and engage with the Math content that will be presented in class the following week.

**Demonstration of problem:** Example problem worked out to completion.

**Evaluate:** 3 questions for the student to evaluate PRIOR to the Skills Blaster session.

**Notes:** Section for students to write questions and notes they have related to the material presented on the Skills Blaster worksheet.

### **Course Structure:**

The weekly Skills Blaster worksheets will be delivered to the students in Math 162 through their lecture course on Blackboard. The worksheets are to be completed **PRIOR** to the Skills Blaster session meeting time. The Skills Blaster session will begin by welcoming the students to the meeting. The leader of the Skills Blaster session will then review the problems that the students completed prior to the session and poll the students to see if there are any questions. The meeting shall continue until either all questions are exhausted, or until the end of the scheduled meeting time. *Note: Attendance should be taken and reported to the Math lecturers, in the case of students receiving extra credit.* The answers to the Skills Blaster worksheet problems will be provided to the students at the end of each Skills Blaster session. *Note: The answers should also be distributed to the lecturers in Math 162 to post on Blackboard after the session time.*

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## Intended Schedule

Week	Lecture Topic	Skill Blaster Area of Focus
1	Linear Equations in One Variable	Adding and Subtracting Fractions
2	Linear Equations in Two Variables	Solving Squared and Cubed Equations
3	Quadratic Equations	Solving Inequality Equations
4	Inequalities and Absolute Values	Interval Notation
5	Graphing Equations	Plotting Points on Graph
6	Functions	Solving for $f(x)$ given $f(a)$
7	Transformations of Functions	Finding $f(-x)$ and $-f(x)$
8	Composite and Inverse Functions	Solving An Equation for a Specific Variable
9	Quadratic Functions	Finding X and Y Intercepts
10	Polynomials Functions and Real Zeros	Laws of Exponents
11	Rational Functions	Simplify Complex Fractions
12	Exponential Functions	Simplify Fractions with Radicals
13	Logarithmic Functions and Rules of Logarithms	Thanksgiving Break
14	Partial Fraction Decomposition	Solving Rational Equations
15	Complex Zeros of Polynomial Functions	Encourage Participation in Exam Jams

\*Highlighted weeks are worksheets also used for M103.

**Suggested worksheets:**

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Skill Blaster for Precalculus MATH162

Week One

**Topic:** Linear Equations in One Variable

**Questions to reflect upon:** Do you know what PEMDAS stands for? Do you fully understand fundamental mathematical operations of addition, subtraction, multiplication and division? Do you know how to add or subtract fractions?

**Problem:**

$$-\frac{1}{2} - \frac{7}{3} + \frac{9}{4}$$

**Demonstration of problem:**

$$-\frac{1}{2} - \frac{7}{3} + \frac{9}{4}$$

**STEP 1**

Find the Lowest Common Denominator.

LCD = 12

$$-\frac{1}{2} - \frac{7}{3} + \frac{9}{4}$$

$$2 \times 6 = 12$$

$$3 \times 4 = 12$$

$$4 \times 3 = 12$$

$$-\frac{1(6)}{2(6)} - \frac{7(4)}{3(4)} + \frac{9(3)}{4(3)}$$

**STEP 2**

Multiply EACH fraction by the multiple it is missing. \*Remember, if you change the bottom of the fraction, you have to change the top as well.

$$-\frac{6}{12} - \frac{28}{12} + \frac{27}{12}$$

**STEP 3**

Now that all the fractions have the same denominator, you can combine them into one fraction.

$$\frac{-6-28+27}{12}$$

**STEP 4**

Use PEMDAS to simplify the numerator.

**STEP 5**



$$\frac{-6-1}{12}$$

$$\frac{-7}{12}$$

\*Always check if your answer can reduce!

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

$$1. \frac{10}{4} - \frac{4}{3} + \frac{1}{4}$$

$$2. -\frac{8}{7} + \frac{1}{2} - \frac{4}{14}$$

$$3. \frac{1}{2} + \frac{2}{6} + \frac{6}{4} - \frac{1}{2}$$

**Notes:**

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Week Two

**Topic:** Linear Equations in Two Variables

**Questions to reflect upon:** Do you know how to solve squared and cubed equations?

**Problem:**

$$1. (x + 2)^2 = 9$$

**Demonstration of problem:**

$$(x + 2)^2 = 9$$

$$\sqrt{(x + 2)^2} = \sqrt{9}$$

$$x + 2 = \pm 3$$

Thus:

$$x + 2 = 3$$

$$x + 2 = -3$$

$$x + 2 = 3$$

$$x = 1$$

$$x + 2 = -3$$

$$x = -5$$

**STEP 1**

The first step in isolating the variable is taking care of the exponent. Because the expression  $(x + 2)$  is raised to the second power, we have to take the square root of both sides to remove it.

\*Remember! Taking an EVEN root means you have the possibility for both a positive and negative answer, so you MUST have two equations at this stage. THIS IS NOT THE CASE WITH ODD ROOTS! Odd roots would only produce one equation at this point.

**STEP 2**

Solve BOTH resulting equations.

**STEP 3**

\*Always check your answer by plugging it back into the original equation!

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

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1.  $(x + 1)^2 = 25$

2.  $(2x - 2)^2 = 16$

3.  $(x - 4)^3 = 27$

**Notes:**

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Week Three

**Topic:** Quadratic Equations

**Questions to reflect upon:** Do you know how to solve an Inequality Equation?

**Problem:**

$$-4 + 3x \leq 2x$$

**Demonstration of problem:**

$$-4 + 3x \leq 2x$$

$$-3x \quad -3x$$

$$-4 \leq -x$$

$$\frac{-4}{-1} \leq \frac{-x}{-1}$$

$$4 \geq x$$

**STEP 1**

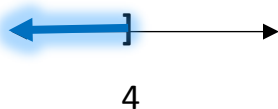
Just as with an equation, you must isolate the variable. Start by moving the x values to one side.

**STEP 2**

In order to further isolate x, we need to divide each side by a -1. When we multiply OR divide by a negative number in an inequality, the direction of the sign MUST flip.

\*Inequalities can also be expressed in a number line, as well as in interval notation:

Number line:





Interval Notation:

$$(-\infty, 4 ]$$

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

1.  $2 + 2x \leq -5x$

2.  $3x + 9 \geq -2x - 1$

3.  $4 \leq -2x + 1 \leq 10$

**Notes:**

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Week Four

**Topic:** Inequalities and Absolute Values

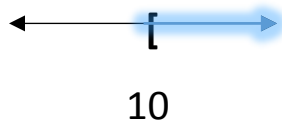
**Questions to reflect upon:** Do you know how to write an answer to an inequality in Interval Notation?

**Problem:**

Write  $x \geq 10$  in interval notation.

**Demonstration of problem:**

$$x \geq 10$$



**STEP 1**

It may be helpful to use a number line to visualize what the equation means.

This equation says that  $x$  is greater than, or equal to, 10. This means that any number, 10 or bigger, will satisfy the equation.

$[10, \infty)$

**STEP 2**

Using the number line, write the answer in interval notation.

\*Remember, start at the MOST NEGATIVE (lowest) number on your number line that is included in the set, and move to the MOST POSITIVE (larger) number your equation can reach.

\*Remember, inequalities with a bar underneath the sign,  $\leq$  or  $\geq$ , ALWAYS get a hard-bracket,  $[$  or  $]$ . Inequalities without this bar,  $<$  or  $>$ , get a normal parentheses,  $($  or  $)$ . Infinity signs,  $-\infty$  or  $\infty$ , ALWAYS get parentheses.

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

Write the following inequalities in interval notation:

1.  $x \leq -3$

2.  $7 < x$

3.  $4 < x \leq 8$

**Notes:**

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Week Five

**Topic:** Graphing Equations

**Questions to reflect upon:** Do you know how to take a set of points and plot them on a graph? Do you know how to look at a graph and determine the ordered pair associated with a point?

**Problem:**

Plot the points  $(1, 2)$ ,  $(-4, -5)$ ,  $(-2, 1)$  and  $(1, -2)$

**Demonstration of problem:**

$(1, 2)$   
↓ ↓  
x y

**STEP 1**

Understand that an ordered pair is a description of a point given as  $(x, y)$ .

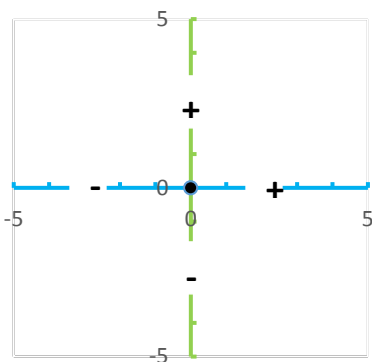
$(-4, -5) \rightarrow x = -4, y = -5$

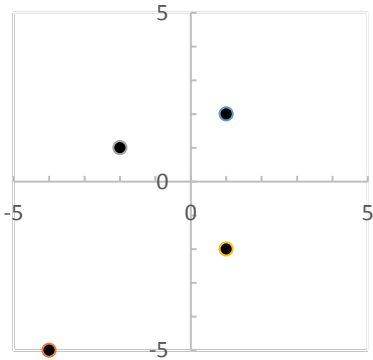
$(-2, 1) \rightarrow x = -2, y = 1$

$(1, -2) \rightarrow x = 1, y = -2$

**STEP 2**

Understand the structure of a graph. The **x axis** is represented as the horizontal axis while the **y axis** is represented as the vertical axis. The point where the two axes cross is the origin where both  $x$  and  $y$  are zero. The left side of the horizontal axis becomes more negative, while the right side becomes more positive. The bottom portion of the vertical axis becomes more negative, while the upper portion becomes more positive.





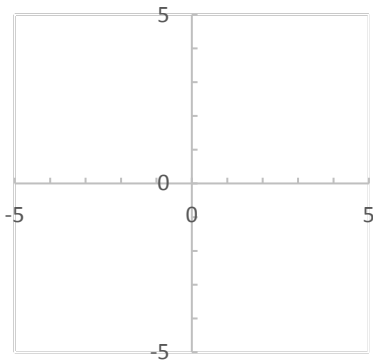
**STEP 3**

Now plot the points. Start by moving horizontally to the value of  $x$ , then up or down to the value of **corresponding  $y$** .

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

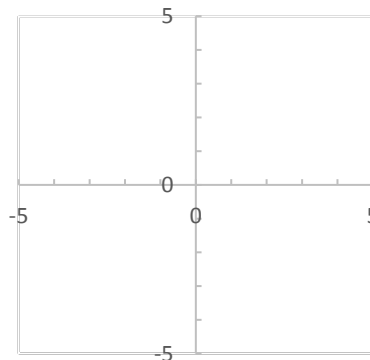
Write out any questions for your Skill Blaster Instructor in the Notes section. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

1. Plot the following points:  $(2,4)$ ,  $(-1, 3)$ ,  $(3,4)$ ,  $(5, -1)$ ,  $(0, -1)$ ,  $(-2,0)$

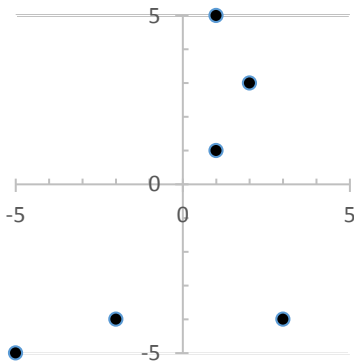


2. Plot the following points:

X	Y
-2	-2
-1	-3
-4	5
2	3
2	-2



3. Identify the points in the graph as ordered pairs.



**Notes:**

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 Week Six

**Topic:** Functions

**Questions to reflect upon:** Do you know how to find  $f(a)$ , given  $f(x)$ ?

**Problem:**

$$\text{Given } f(x) = 2x - 5 + \frac{3}{x} \text{ find } f(3)$$

**Demonstration of problem:**

$$f(x) = 2x - 5 + \frac{3}{x}$$

$$f(3) = 2(3) - 5 + \frac{3}{(3)}$$

**STEP 1**

The given function is  $f(x)$ , where select parts of the equation have the variable  $x$ .  $f(3)$  asks what would the result be if all the  $x$ 's in the equation were instead replaced by 3.

\*Remember, when substituting, it is best to put parentheses around the quantity you are substituting. In more complex substitutions, you must be sure to follow PEMDAS rules.

$$f(3) = 2(3) - 5 + \frac{3}{(3)}$$

**STEP 2**

Simplify the new equation.

$$f(3) = 6 - 5 + 1$$

$$f(3) = 1 + 1$$

$$f(3) = 2$$

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

1. Given  $f(x) = 4x - 1 + \frac{4}{x}$  find  $f(2)$

2. Given  $f(x) = \frac{3x}{2} - 7x + 1$  find  $f(4)$

3. Given  $f(x) = 2x - 5$  find  $f(x + 1)$

**Notes:**

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Week Seven

**Topic:** Transformations of Functions

**Questions to reflect upon:** Do you know how to find  $f(-x)$  and  $-f(x)$ ?

**Problem:**

Given  $f(x) = -4x + \frac{1}{x} - 1$  find  $f(-x)$  and  $-f(x)$

**Demonstration of problem:**

$$f(x) = -4x + \frac{1}{x} - 1$$

$$-f(x) = -(-4x + \frac{1}{x} - 1)$$

$$f(-x) = -4(-x) + \frac{1}{(-x)}$$

**STEP 1**

$-f(x)$  refers to making the entire  $f(x)$  negative, whereas  $f(-x)$  refers to replacing every  $x$  with  $-x$

\*Remember, when substituting, it is best to put parentheses around the quantity you are substituting.

$$-f(x) = -(-4x + \frac{1}{x} - 1)$$

**STEP 2**

Simplify the equations.



$$-f(x) = 4x - \frac{1}{x} + 1$$

$$f(-x) = -4(-x) + \frac{1}{(-x)} - 1$$

$$f(-x) = 4x - \frac{1}{x} - 1$$

\*It is important to note that  $-f(x)$  and  $f(-x)$  are NOT interchangeable, as seen above.

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

1. Given  $f(x) = x - 1 + \frac{x}{2}$  find  $-f(x)$  and  $f(-x)$

2. Given  $f(x) = -7x^3 + 4(1 - x) + 1$  find  $-f(x)$  and  $f(-x)$

3. Given  $f(x) = 3x^2 - 5x + 7$  find  $-f(x)$  and  $f(-x)$

**Notes:**

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Week Eight

**Topic:** Composite and Inverse Functions

**Questions to reflect upon:** Do you know how to solve an equation for a specific variable?

**Problem:**

$$\text{Solve } 4x = \frac{y-1}{3y+2z} \text{ for } y$$

**Demonstration of problem:**

$$4x = \frac{y-1}{3y+2z}$$

**STEP 1**

Identify the variable you are solving for and determine what portion of the equation to move first. As one of the  $y$  terms is in the denominator of a fraction, the first move should be eliminating that fraction by multiplying to both sides.

$$(3y + 2z) * 4x = \frac{y-1}{3y+2z} * (3y + 2z)$$

$$4x(3y + 2z) = y - 1$$

\*Because there are two terms, you CANNOT just multiply by one of the terms.



$$4x(3y + 2z) = y - 1$$

**STEP 2**

In order to get the  $y$  value out of the parentheses, the left side needs to be distributed.

$$12xy + 8xz = y - 1$$

$$12xy - y = -8xz - 1$$

**STEP 3**

Now, you must get all the terms that contain a  $y$  on one side, and move everything else to the other.

$$y(12x - 1) = -8xz - 1$$

Because each term on the left hand side contains a  $y$ , you can factor the  $y$  out of each term. Then, in order to isolate  $y$ , you can divide out the rest.

$$\frac{y(12x - 1)}{(12x - 1)} = \frac{-8xz - 1}{(12x - 1)}$$

$$y = \frac{-8xz - 1}{12x - 1}$$

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

1. Solve  $2z = \frac{x-1}{x+2y}$  for  $x$

2. Solve  $4 = \frac{y-1}{y+2}$  for  $y$

3. Solve  $x + 2 = \frac{y-3z}{3y+2z}$  for y

**Notes:**

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Week Nine

**Topic:** Quadratic Functions

**Questions to reflect upon:** Do you know how to find X and Y intercepts?

**Problem:**

Find the x and y intercept of  $y = x^2 + x - 6$ .

**Demonstration of problem:**

$$y = x^2 + x - 6$$

$$\text{X intercept: } 0 = x^2 + x - 6$$

$$\text{Y intercept: } y = (0)^2 + (0) - 6$$

**STEP 1**

A x intercept occurs when the y value = 0. (x, 0)  
A y intercept occurs when the x value = 0. (0, y)

We will need to solve two equations to get these points

$$0 = x^2 + x - 6$$

$$0 = (x - 2)(x + 3)$$

$$0 = x - 2$$

$$2 = x \longrightarrow (2, 0)$$

$$0 = x + 3$$

$$-3 = x \longrightarrow (-3, 0)$$

**STEP 2**

To solve the x intercept, we need to get x by itself. Because this is a quadratic, it requires factoring.

$$y = (0)^2 + (0) - 6$$

$$y = -6 \longrightarrow (0, -6)$$

**STEP 3**

To solve the y intercept, we need to get y by itself.

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

Find the x and y intercept of the following equations:

1.  $y = 2x^2 + 2x - 4$

2.  $y = 3x^2 - 6$

3.  $3x + 2y = 4$

**Notes:**

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Week Ten

**Topic:** Polynomials Functions and Real Zeros

**Questions to reflect upon:** Do you know the laws of exponents?

**Problem:**

Simplify  $\frac{(x^1y^4z^{-2})^3}{x^{-3}y^2z^0}$  using the laws of exponents.

**Demonstration of problem:**

$$\frac{(x^1y^4z^{-2})^3}{x^{-3}y^2z^0} = \frac{(x^1y^4z^{-2})^3}{x^{-3}y^2(1)}$$

$$= \frac{(x^1y^4z^{-2})^3}{x^{-3}y^2}$$

STEP 1

$$a^0 = 1$$

$$\frac{(x^1y^4z^{-2})^3}{x^{-3}y^2} = \frac{x^{1*3}y^{4*3}z^{-2*3}}{x^{-3}y^2}$$

STEP 2

$$(a^x)^y = a^{x*y}$$

$$= \frac{x^3y^{12}z^{-6}}{x^{-3}y^2}$$

$$\frac{x^3y^{12}z^{-6}}{x^{-3}y^2} = \frac{x^3x^3y^{12}}{y^2z^6}$$

STEP 3

$$a^{-x} = \frac{1}{a^x}$$

$$\frac{x^3x^3y^{12}}{y^2z^6} = \frac{x^6y^{12}}{y^2z^6}$$

STEP 4

$$a^x a^y = a^{x+y}$$

$$\frac{x^6y^{12}}{y^2z^6} = \frac{x^6y^{10}}{z^6}$$

STEP 5

$$\frac{a^x}{a^y} = a^{x-y}$$

$$\frac{x^6y^{10}}{z^6}$$

STEP 6

Make sure you cannot simplify anymore!

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

1. Simplify  $\frac{(x^3y^2z^1)^2}{x^2y^4z^1}$

2. Simplify  $\frac{x^{-2}y^{-2}}{(x^{-3}y^{-2}z^4)^4}$

3. Simplify  $\frac{(x^{-4}y^{-3})^{-2}}{(y^{-2}z^1)^{-1}}$

**Notes:**

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Week Eleven

**Topic:** Rational Functions



**Questions to reflect upon:** Do you know how to find an LCD involving variable expressions in the denominator?

**Problem:**

Simplify the expression  $\frac{2}{3x} + \frac{1}{x+1} - \frac{3}{3}$  into one fraction.

**Demonstration of problem:**

$$\frac{2}{3x} + \frac{1}{x+1} - \frac{5}{3}$$

**STEP 1**

Find the Lowest Common Denominator.

LCD =  $3x(x+1)$  \*Remember, the LCD is all the factors that make up the denominators!

$$\frac{2(x+1)}{3x(x+1)} + \frac{1(3x)}{(x+1)(3x)} - \frac{5(x(x+1))}{3(x(x+1))}$$

**STEP 2**

Multiply EACH fraction by the multiple it is missing. Pay attention to the number of terms in the denominators, and distribute as needed!

$$\frac{2x+2}{3x(x+1)} + \frac{3x}{3x(x+1)} - \frac{5(x^2+x)}{3x(x+1)}$$

**STEP 3**

Now that all the fractions have the same denominator, you can combine them into one fraction.

$$\frac{2x+2+3x-5(x^2+x)}{3x(x+1)}$$

**STEP 4**

Use PEMDAS to simplify the numerator.

\*Remember, you cannot combine unlike terms.

$$\frac{2x+2+3x-5x^2-5x}{3x(x+1)}$$

$$\frac{-3x^2+2}{3x(x+1)}$$

**STEP 5**

\*Always check if your answer can reduce! For a fraction with MORE THAN ONE term in the numerator, every term must be able to reduce by the same factor!

$$\frac{-3x^2+2}{3x(x+1)}$$

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

Simplify the expression into one fraction:

$$1. \frac{1}{x+1} + \frac{2}{2} - \frac{4}{x}$$

$$2. \frac{3}{2x} - \frac{1}{3x} - \frac{3}{x-4}$$

$$3. \frac{x}{2x} + \frac{1}{12} + \frac{2}{3x} - \frac{2x}{2x-1}$$

**Notes:**

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Week Twelve

**Topic:** Exponential Functions

**Questions to reflect upon:** Do you know how to simplify fractions with radicals?

Simplify  $\frac{\sqrt[3]{16xy^2}}{\sqrt[3]{2x^5y^5}}$

**Demonstration of problem:**

$$\frac{\sqrt[3]{16xy^2}}{\sqrt[3]{2x^4y^5}}$$

**STEP 1**

Because the radicals have the same index, we can combine them into one.

$$\sqrt[3]{\frac{16xy^2}{2x^4y^5}}$$

**STEP 2**

Now, you can reduce the fraction by dividing the constants and using the laws of exponents.

$$\sqrt[3]{\frac{8}{x^4y^5}}$$

**STEP 3**

You may now pull cubed values out of the radical.

$$\sqrt[3]{\frac{2^3}{x^3xy^3y^2}}$$

2

$$xy\sqrt[3]{xy^2}$$

**STEP 4**

Because there is still a radical in the denominator, we need to rationalize it.

$$\frac{2}{xy\sqrt[3]{xy^2}} * \frac{\sqrt[3]{x^2y}}{\sqrt[3]{x^2y}}$$

$$\frac{2\sqrt[3]{x^2y}}{xy\sqrt[3]{x^3y^3}}$$

$$\frac{2\sqrt[3]{x^2y}}{x^2y^2}$$

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

Simplify:

1.  $\frac{\sqrt[3]{4x^2y^{10}}}{\sqrt[3]{24x^5y^6}}$

2.  $\frac{3x}{\sqrt[3]{27x^{13}y^2}}$

3.  $\frac{4xy\sqrt{18x^4}}{\sqrt{2y^2}}$

**Notes:**

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Week Thirteen

**Topic:** Add/Subtract/Multiply Radicals

**Thanksgiving Break**

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Skill Blaster for Precalculus MATH162

Week Fourteen

**Topic:** Partial Fraction Decomposition

**Questions to reflect upon:** Do you know how to solve rational equations?

**Problem:**

$$\frac{12}{x^2 - 4} = \frac{1}{x - 2} + \frac{3}{x + 2}$$

**Demonstration of problem:**

$$\frac{12}{x^2 - 4} = \frac{1}{x - 2} + \frac{3}{x + 2}$$

$$\frac{12}{(x - 2)(x + 2)} = \frac{1}{x - 2} + \frac{3}{x + 2}$$

LCD:  $(x - 2)(x + 2)$

**STEP 1**

The goal is to find an LCD to multiply the equation by that will eliminate the denominators. Simplify the denominators as much as possible by factoring where you can to determine the LCD.

$$(x - 2)(x + 2) * \frac{12}{(x - 2)(x + 2)} = (x - 2)(x + 2) * \frac{1}{x - 2} + (x - 2)(x + 2) * \frac{3}{x + 2}$$

$$12 = (x + 2) * 1 + (x - 2) * 3$$

$$12 = x + 2 + 3x - 6$$

$$12 = 4x - 4$$

**STEP 2**

The next step is to simplify the equation.

$$16 = 4x$$

$$4 = x$$

$$\frac{12}{(4)^2 - 4} = \frac{1}{(4) - 2} + \frac{3}{(4) + 2}$$

**STEP 4**

You MUST check your answer with rational equations. If ANY of the denominators become zero, it means there is no solution!

$$x = 4$$

**Evaluate:** Complete these three problems PRIOR to the Skill Blaster Session.

Write out any questions for your Skill Blaster Instructor in the Notes section below. If you encountered any difficulties or uncertainties with these problems, be sure to record where you encountered them and why you feel you struggled.

Solve the following:

$$1. \frac{9}{x^2+3x+2} = \frac{1}{x+2} + \frac{2}{x+1}$$

$$2. \frac{1}{x-4} + \frac{1}{x-2} = \frac{7}{(x-2)(x-4)}$$

$$3. \frac{6}{x-4} = \frac{1}{3} - \frac{3}{x}$$

**Notes:**

Math and Science Resource Center

Skill Blaster for Precalculus MATH162

Week Fifteen

## Final Preparation